TDARS News Letter

TELFORD AND DISTRICT AMATEUR RADIO SOCIETY

www.TDARS.org.uk FOUNDED 1969 www.TelfordHamfest.co.uk

Issue 304 Jan—Feb. 2022

www.TDARS.org.uk **Programme** www.telfordhamfest.co.uk

Some Meetings temporarily returned to Webex Online : see listing below

January 19	**Practical Projects on a Theme: MY FAVOURITE RADIO SOFTWARE (Online)** Members are invited to "share screen" their personal most-used or favourite radio orientated software. Meeting via Webex.from 8pm.
January 26	**The NanoVNA video by Alan Wolke W2AEW from the G-QRP's Video collection. Follow-on from Eric's M0KZB presentation in 2020. Webex**
February 2	**Committee meeting (Webex). + 2m net (144.600 MHz FM).**
February 9	**Under-a-Fiver Construction Trophy Competition—Webex Online**
February 16	**Surplus Equipment Sale at LWVH. (Regs. permitting)**
February 23	**"Solar Cycle 25" Steve G0KYA RSGB Convention video: Poss. LWVH + video**
March 2	**Committee meeting (Webex). + 2m net (144.600 MHz FM).**
March 9	**Telford & Wrekin Planning for Antennas at LWVH—TO BE CONFIRMED**
March 16	**Main Construction Competition at LWVH (TBC)**
March 23	**Portable & Contest Planning for 2022**
March 30	**Annual General Meeting at LWVH (Regs. permitting)**
April 6	**Committee meeting + 2m net (144.600 MHz FM).**

***Some Meetings temporarily returned to Webex Online* : see listing above**

For Equipment Loans & Returns contact Don M0TBQ.
For "Beyond Exams" scheme (Club or Individual) —enquiries to Graham G7LMF
For Morse Training and Morse Proficiency Tests Martyn G3UKV or Eric M0KZB.
Radio Amateur Exams- Latest: Contact Graham G7LMF training@tdars.org.uk

Editorial

It's not been easy for the tdars Programme organising committeeee to keep up with constant changes as the cursed Pandemic has ebbed and flowed. However, until the end of February it has been decided to avoid face-to-face meetings at LWVH, except for the Surplus Equipment Sale on February 16th. which is always popular. For now, the situation will be reviewed at every monthly Committee Meeting and circulated via the usual channels. However, if anyone is unsure about a particular evening meeting, feel free to phone or text any of the guys listed at the foot of this page.

On a more cheerful personal note, I had one of those moments recently where I felt on top of the amateur radio world. I had been messing about with Oscar QO-100 (geostationary satellite carrying NB and WB amateur radio transponders). I had successfully had SSB and CW narrowband QSOs for some months, but simply couldn't resolve the Digital ATV signals coming down some 35,000 Km from space. I tried various approaches (different dish, change of LNB etc) until BINGO!! - one dull afternoon the digital beacon video appeared on my laptop screen for the very first time. I really surprised myself how thrilled I was to achieve this outcome, and it took me back to when I first had my G3UKV licence back in the sixties, and had my first QSOs on the 160 and 80m bands. Why am I telling you this? - Well, I wondered (and hoped) that every radio amateur has had moments like I had with Oscar 100. It really is a wonderful hobby with so many facets to give you a thrill !

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A picture from the past— Trip to German HamFest— Summer 2018 (?)

L —- R: Martyn G3UKV, Paul G8AQA, Heather M0HMO, John M0XJA, Jim G8UGL (SK) and Paul M0PLA

(Tks. Paul 'PLA for pic.)

Telfordhams

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TELFORD & DISTRICT AMATEUR RADIO SOCIETY : 2021-22

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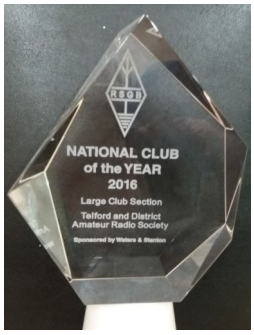
Committee: Graham G7LMF; Ian M0IRP; Village Hall Committee Liaison officer Martin 2E0TRO; QSL Manager Paul M0PNN; Assist Curator: Chris 2E0EOH; Trophies/Certs: Martyn G3UKV.

Qtc: News & Information

TDARS MEETINGS EVERY WEDNESDAY EVENING HELD NORMALLY AT LITTLE WENLOCK VILLAGE HALL OR ONLINE (Webex); PLEASE CHECK FRONT PAGE LISTING FOR SPECIFIC DETAILS.

Please note: A current membership card may be required to borrow TDARS equipment. Please return borrowed equipment promptly .

Due to increased Covid-19 infections, locally and nationally, ***the TDARS Committee has decided to arrange most meetings on-line via Webex*** for the next month or more. Hopefully things will improve as the year goes on. Paid up (and honorary) Members are invited via e-mail to join on-line meetings where there is a specific presentation or event, but more general meetings are open to anyone who has shown interest in the past—usually from the tdars groups.io reflector. However, ***we plan to meet at LWVH*** for the Surplus Equipment Sale (Feb.16), Main Construction Competition (March 16) and AGM (March 30), always subject meanwhile to any government rule changes. The committee recognises, and apologies to several members who do not have Internet access to share in the on-line meetings. The Newsletter also remains available via groups.io, and also via the Club's Website (WWW.tdars.org.uk). Posted ***hard copy*** can also be arranged via the Editor (Martyn, G3UKV).



There has been no take-up by any Member of the offer to ***activate the club station GX3ZME (or GX6ZME***) regularly—either from LWVH or their own home.. It was hoped that there could be a return to use of the callsign on any HF or VHF band, particularly on the First Wednesday (Committee meeting night) of each month. All that is required is for the operator to hold a 'Full' AR licence and to inform the club OfCOM licence holder (G3UKV, M0JZH respectively) of their request. It has been mentioned that a Foundation or Intermediate licence holder could also use the callsign, so long as a Full licence holder is present. Using the 'GX**** prefix attracts activity on the bands, and gives TDARS a 'plug' on-the-air.

A further activity that promotes the Club, and can be a source of involvement and fun is the series of ***RSGB UKAC*** (UK Activity Contests) that take place on Tuesday (sequentially 2m, 70cm, 23cm and SHF) and Thursday evenings (4m and 6m) from 20:00 hrs local time. We have entered for many years, and usually end up in the top half of the results tables. However, the more members who take part, what-ever their scores, the higher goes our collective score. Why not give it a try? It would be great to get in the Top 10 for once ! See article later in this Newsletter from ***Dave G0CER*** on this topic.

Many thanks to ***Peter G4URT*** who has donated a ***70cm 22 element antenna*** to TDARS. No doubt it will come in handy once club members get out portable again in the spring and summer months.

At the ***23rd March TDARS*** meeting, all things being equal, ***preparations for possible portable activities*** will be discussed. This includes **(1)** Marconi International weekend 22-24 April at Tywyn: **(2)** 6metre Trophy Contest 18-19 June on Long Mynd **(3)** VHF NFD 2-3 July also on Long Mynd: **(4)** A ***possible*** summer visit to Guernsey (August?) or Germany (Friedrichshafen show—June 24-26) will also be on the agenda. As always, such events need leaders and volunteer members if they are to take place at all. Please check your diaries and see if you can support one or more of these activities.

Webex screen-shot from last December's "Mince Pie & Mulled Wine" 'at home' meeting. . .

Batman, Christmas hats, space travel, fruity garden and more.. . . (photo: G7LMF)

A few congratulations are in order:

Paul & Heather **G8AQA / M0HMO** for their excellent organisation of a Midlands Microwave Roundtable, at Eaton Manor Estate in early December. Thanks also to **John G7ACD and Nikola** who made the venue available. (Sorry for poor photo quality—Ed.) >>>>>
Also to **Ken G3YKI** for his advice on SHF filters 'Scatterpoint' magazine.
Also to **David M0YDH** for his articles in the BATC magazine 'CQ-TV'.
TDARS members do make a difference; apologies for anyone left out !

Meanwhile, Paul M0PNN circulated this (much reduced) image of his first Moonbounce EME QSO last November with DL7APV.
Response from Peter G1OAR " Well done Paul, I used to work many lower power stations on eme when I was active on 6m some years ago....mind you I was using 4*5 ele fully steerable array."

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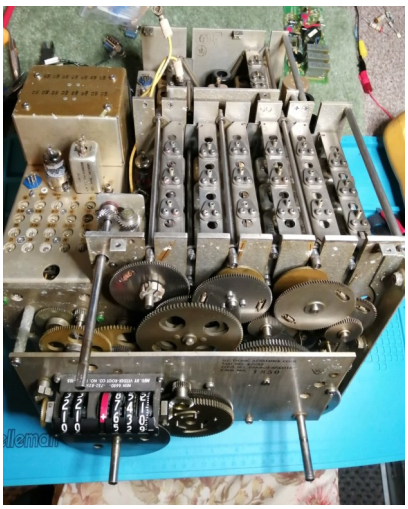
First 2022 Radio Musings from Criggion. *By Robert GW6GBY*

It's been a rather dull few weeks from all angles, especially the weather. Hopefully, with slightly longer days and a bit more sunshine, things will look a little rosier. I now have the Llandrinio QTH up and running on 80m (and shorter wavelengths). My noise floor levels are much improved over Criggion View (previous QTH) but far noisier than Criggion Radio Station. The only sticking point is that my usual 2m/70cm contacts have gone deaf as the 9m wind-up mast needs to be 30m. I will try a Yagi, even with the essential added complications and expense of a rotator. At 9m my wind-up mast is till 2m or more shy of the roof line. A 2m long chimney mounted pole may very well be part of the answer.

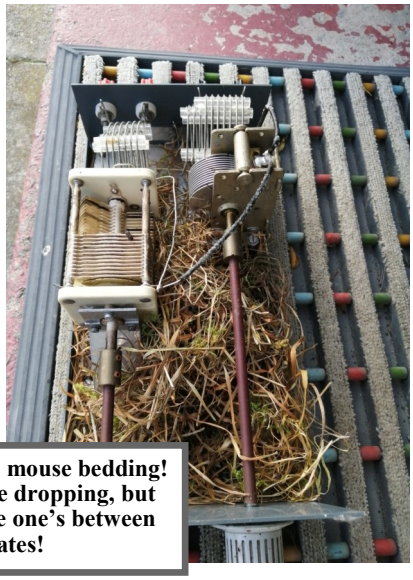
On to the boat anchor section; I did mention at our TDARS Christmas Zoom party/meet, that I had acquired two Collins R390A receivers. The first one seems to work "out of the garage" so to speak and was actually made by Collins in 1955. The second is very deaf, a 1954 vintage made by Motorola for the Signal Corps of the US Army. It was carefully wrapped in fleece. Not a good idea if left in a garage – read on! It's now in bits on my new QTH workbench (see photos). You need to be quite nifty with gear boxes as well as soldering irons to get this beast back in one piece (pref. with no bits left over). I intend a "minimal restoration" (i.e. to a good reliable working state). The older deaf Collins has now had the RF, IF and VCO sections removed along with the mouse pooh. 4 resistors were found well out of tolerance and 2 open circuit + suspect capacitors replaced (grid coupling and screen grid decoupling especially). There was also a centre-tapped transformer in the 2nd IF stage where one end of the coil apparently had been left unsoldered, possibly from new.

Top Collins R390A is actually made by Motorola in 1954.



The R390A RF Section, complete with complex gearbox arrangement

On the subject of mice, my long dipole seemed to unexpectedly go deaf. After checking and messing about with the coaxial tail and 450 Ohm feeder (following strong winds) and finding nothing, I took the lid off the KW Easy Match ATU expecting nothing odd. I was therefore surprised to find a mouse had taken up residence. There was a 12mm hole in the back-plate where a connector had been removed. Following a good clean-up it still did not seem to work. Very close inspection with a strong light showed a tiny particle of mouse pooh had lodged between the plates of the closely spaced LH capacitor. A high pressure blast of air was needed to return it to operation. We live and learn.



KW Easy Match ATU plus mouse bedding! You can see the big mouse dropping, but not the surface mount size one's between the LH Cap plates!

CQ WW CW Contest, November 2021

By John Warburton G4IRN (op: MD4K team)

We were plagued with problems here on the Isle of Man, mainly due to Storm Arwen but also some technical issues.

The team consisted myself, Dave/G3NKC, Martin/G4XUM and Roger/G4BVY, all of us seasoned CQWW contesters, and Rich/M5RIC was with us as 'Flex and IT consultant'. The station is hosted by an licensed islander who Martin and Dave have known for decades. Of course we had been planning for months, but the Isle of Man was very much our 'Plan B', our hope was to be in the **Seychelles** this year but with all the Red List stuff going on, we left it too late to book the accommodation

All article photos by John G4IRN

We arrived on the island last Tuesday on the Heysham ferry, checked into our holiday cottages about 15 minutes from the station and set about building the station on Wednesday. First to go up was a 20m Spider-pole carrying the 80m (trapped) and 160m inverted L antenna, together with about 20 radials. LF Rx Beverages were set up pointing to North America and Asia. There are two 60ft towers already installed at the station, one with an Optibeam tribander and the other an Antenna Depot 40-10 quad-bander. The 2 ele 40m Yagi on the latter is separately fed but the 20-15-10 elements on both Yagis are fed through Stack Match units so we can transmit in two directions at the same time if desired. On Thursday the two towers were set to about 50ft and firmly guyed.

Martin had decided we would use Flex Radio 6600Ms at the station. We were hoping to have time before the contest to run some pile-ups but that just didn't happen - we had too many issues getting the IT integrations to the Flex software and the logging software (DXLog) working properly. The SDR element of the Flex radios run on Windows 10 and before we could do anything, they needed the latest W10 updates - with the very slow internet connection at the station that took a whole day. Although we had a quick lesson on driving the radios, a huge lessons learnt was that we didn't have enough time to familiarise with these radios and that slowed us down. When they're set up properly they perform very well but we were plagued with silly issues like loss of side-tone, side-tone too loud, not knowing how to swap VFOs A&B to work a mult etc. etc. They were all ironed out in the end but the heat of the contest is not the time to do it.

We had decided to enter the Multi Operator/Two Transmitter category of the contest - with four operators on the team, Dave and I were time-tabled to kick off the contest at midnight on Friday with 4 hour on/4 hour off operating shifts throughout the 48 hour period. When we left our accommodation at about 23:20 on Friday it was already very windy and just 5 minutes down the road we encountered a fallen tree across the road. We managed to navigate around it but here was lots of debris on the road and swirling around, we realised we shouldn't really be outside but we bit the bullet and went for it.

Arriving at the station and doing a quick check, we found the two beams were stuck pointing south and couldn't be turned. Also the 160m antenna SWR was sky-high so that already put huge restrictions on us. We'd decided that I would start on 40m and Dave on 80m for the first two hours and then would swap round. With a MD prefix I would expect rates on 40m of 170-180/hour for the first two hours but with the beam pointing south, it was hopeless. CQ's met with silence and eastern multipliers were inaudible or very weak. I did mange to work some good African multipliers as a small compensation but it was all very frustrating and disappointing. During our session we had to reboot both radios too - essentially these are Windows 10 reboots so each took several minutes, again very frustrating.

Continued >>>>>

Thanks for <u>Newsletter input this time:</u>

Peter G4URT, David M0YDH, Graham G7LMF, John G4IRN
Robert GW6GBY, Mike G3JKX, Dave G0CER, Paul M0PLA, Paul M0PNN

Next edition March/April 2022
Can YOU contribute something?— Results in a better Newsletter !

When daylight arrived on Saturday, Martin and Roger tried to fix the 160m vertical, but it ended up with us losing 80m and 160m - we later found a faulty trap. We eventually managed to turn one of the Yagis to North America but by this time we were well behind our targets.

Around 13:30 on Saturday we made a decision to retire - there was no way we could put a competitive entry in without 160 or 80, an antenna pointing the wrong way on 40m and restricted coverage on 10-15-20m. For the record we did manage the following QSO totals for the 13.5 hrs that we operated:

(Z= zones, C = Countries, DUP = Dupes)

BAND	QSO	Z	C	DUP	POINTS	AVG
160	0	0	0	0	0	0.00
80	1135	16	66	9	19631	.73
40	748	23	82	14	10891	.46
20	743	18	73	20	11681	.57
15	257	20	54	1	3961	.54
10	15	5	10	0	211	.40
TOTAL	2898	82	285	44	4637	1.60

L-R you have Roger/G4BVY, Dave/G3NKC, Martin/G4XUM, John/G4IRN, Rich/M5RIC pre-contest in SW tip of island.

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Logger software
- both have rig control if you like using that - it put the exact time and frequency into your log
https://n1mmwp.hamdocs.com/
http://minos.sourceforge.net/download.html

TDARS does very well in these AC (activity contests) but never quite in the top few - could we get the club winning some metalwork and get members active from home or out about portable doing contests in 2022? You always have 7 days to upload your log to the RSGB site after each contest.
If you have a go and get stuck with uploading or transcribing logs please mention it on the club groups.io messages which this comes from.

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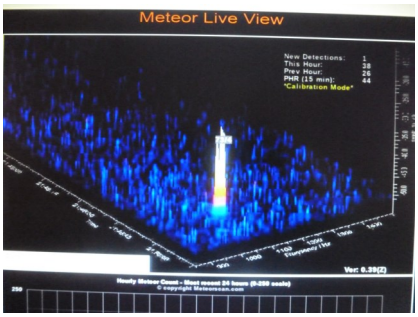
The next big meteor shower was the Quadrantids with a predicted peak of activity (ZHR of 120 meteors per hour) on the 3rd of January 2022 at about 2030GMT. The intention during this activity period was to break the 2000km barrier which is just amount the limit for MS contacts. I really wasn't interested in mid-EU / Scandinavian contacts. However, monitoring on and off during the day and viewing the Meteor Live site it seemed as though the peak occurred at 1300 hrs with a ZHR of about 55 and even then not much in the way of activity.

The Meteor Live site can be downloaded from the following link :

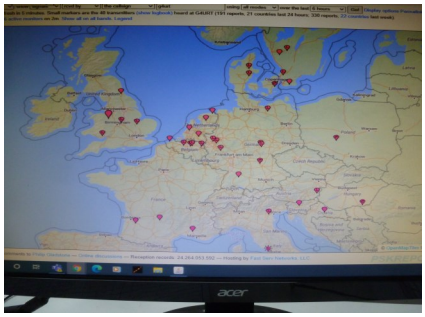
www.meteorscan.com/meteor-live.html

Well worth downloading if only for the 3D view of the meteor activity which can look very pretty during a major shower.

Still, perseverance paid off and my goal of breaking the 2000km distance was completed with RA1WP (KO47dp) using MSK441 with a distance of 2017 km. RA1WP was on a real roll as I saw him work GM3SEK and GI4SNA along with several other G stations as well. There were a couple of other activity peaks noted on the Live Meteor site over the next 24 hours but nothing like the 100+ that was expected. As this shower is always very short lived that was that. Only 1 QSO but quality overcame quantity! Next shower of any size is the Eta Aquariids (associated with Halleys Comet) end of April / beginning of May. Then the biggee – Perseids during 12th – 13th August. That reminds me – must put a note in the diary in case Mrs URT has designs on a holiday at that time....**and of course there is always EME!**



Meteor live view showing reflection during Geminids.



PSK Reporter showing activity at G4URT during Geminids.

Virgo Meteor Shower showing beam directions for MS during Geminids.

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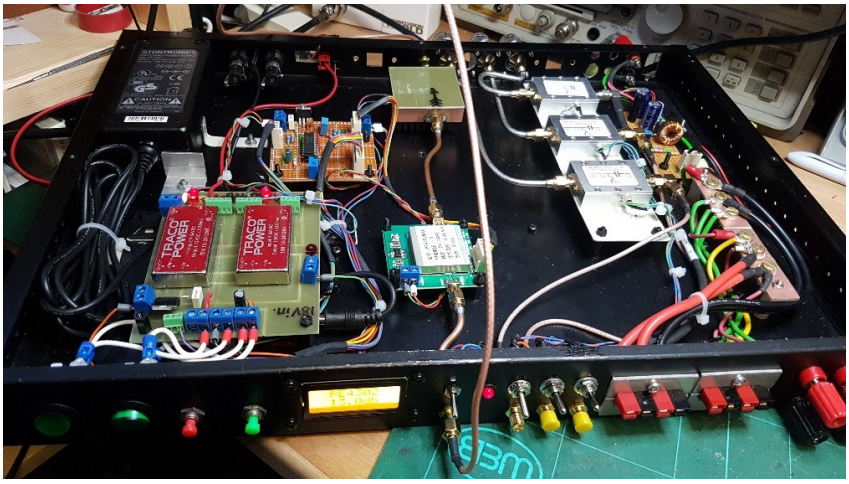
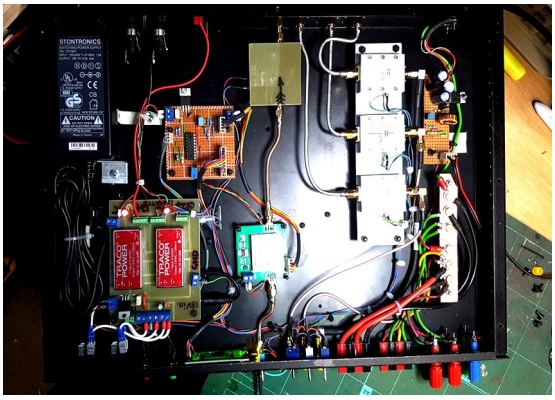
QO-100 Accessory Unit—by David Holman M0YDH

I've made the unit pictured in a 1U 19 inch rack case which combines lots of components of a QO-100 DATV system. I had a regular rats' nest of cables and no room on the operating desk. Also I learnt from Noel G8GTZ one Thursday net that the output from e.g. a Portsdown stays in transmit and the driver amplifier is powered on and off as the PTT item. After some transmit accidents, I needed to make an improvement here.



I bought an 18VDC 3.3A power supply – Stontronics T3179ST - as a starting point. The bias tee voltage into the LNB for TV is 18V so that was a good starting point. I had some Traco power DC-DC converters that James G0DQH had kindly given me. Cheaper voltage regulators would also do. I carved a circuit card in plain copper board with a small grinding disc and scalpels and mounted these. Converters. I have a quad LNB where one input is used for injecting a precision 25MHz reference frequency from a Leo Bodnar clock. The other 3 Inputs are available for reception. I installed 3 bias tees sourced from Ebay. The description is "RF Biaser Bias Tee 10MHz-6GHz F HAM Radio RTL SDR LNA Low Noise Amplifier + Case". Three toggle switches connect either 12 V for NB or 18 V for TV to their respective Bias Tee. The outputs into a receiver are on the front panel.



For the transmit side, I have a PE4302 programmable attenuator and the AMSAT Filtered S Band Driver Amplifier by David G0MRF. I made the attenuator controller on Veroboard as described by the club Wiki page. https://wiki.batc.org.uk/PE4302 . For programming the hex file on the PIC, I used my clone PICKIT3 device and the useable but old MPLAB IPE v3.0 software. Modern Microchip software is incomprehensible to me and simply vast. I can attenuate output power up and down using the red or green push buttons whilst watching the Wideband spectrum on the internet .

I decided to build an enclosure for the driver amp from plain pcb soldered together to make sure it doesn't radiate. (Something odd had happened when all these component units were on the bench and the PA went into full power transmit.) The all important toggle switch on the front panel turns the driver amp on and off. The response of the PA is prompt and independent of software control.
The right hand side of the unit is given over to 13.8V distribution from the shack regulated power supply via Powerpoles and 4mm Banana plugs (The shack PSU is a Watson W-25AM but I've civilised it with a Noctua fan so now you can only hear the hum of the magneto-striction from the steel case!) There's a 5VDC regulator going to the blue and green terminals. The Leo Bodnar frequency reference is powered from a connection to the rear of the unit

I'm really pleased with this simple, non-ground-breaking project. I have only 3 power supplies to turn on for QO-100 TV activity, easy access to connections and direct control over transmit.
Operating on QO-100 with a Portsdown 4 and receivers has become easier and more predictable.

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Happy New Year; here an update from John G4IRN*: (e-mail dated 9th Jan.)*

Last September I started renting a field, about 6 miles south of home in the Shropshire Hills, with the intention of creating a remote HF station. Even though there are usability issues still to sort out, this weekend I made my first proper contest effort in the RSGB Affiliated Societies (AFS) CW contest, making 317 QSOs in the 4 hour period on 80m and 40m. Not a winning score, but a milestone in the development of the station. Indeed, it's not a 'DX' contest but I was pleasantly surprised to be called on by K6AR in California, on 40m long path during the contest - the take-off from the site is excellent.

The station currently consists an Elecraft K3 and Expert 1.3k amplifier, remotely controlled via a 4G data link. Antennas are quite modest at the moment, just a Butternut HF2V (33ft vertical on 40, 80 and 30m) and inverted-Vee dipoles for 40m and 80m at 35ft on a tele-scopic mast.

I have hopes to improve everything over time but the site is very exposed and during the winter (i.e. wet) months it's impossible to drive all the way up to it, so progress is slow.

I've built a 55ft top loaded 160m vertical in readi-ness for the CQWW 160m contest at the end of January. The radials are still to go down and the antenna still needs to be tuned, but at least it's in the air. I will probably need some RX antennas too, but whether I'll have time before the contest, I don't know. The mobile telescopic mast can just be seen on the left.

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Bits & Bobs

Heather M0HMO has been busy again, presenting an hour+ long feature for the RSGB “Tonight@8” video series, which she ‘broadcast’ on the 10th of January
https://rsgb.org/main/tonight-at-eight-live-webinars/

Scroll down to ‘archived videos.’ Really informative video at a sensible level for anyone interested in programming Arduinos and the like. The session was titled “Software construction and where it can lead you”. (photo: Heather and a programmed Arduino—taken offline from the web.)

Useful bit of “News” circulated on the G-QRP Reflector explaining that the **EZNEC** Antenna modelling site by W7NL is now available for free. Quite a few TDARS members have taken advantage of this excellent piece of software. Go to :- https://www.eznec.com.

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